WHAT IS CLAIMED IS:

1. A sensing apparatus, comprising:

(a) a substantially planar occlusive backing; and

(b) a reporter system that absorbs or emits a detectable radiation, said reporter system attached, adhered, or otherwise connected to a first planar surface of the occlusive backing, wherein said reporter system binds an analyte of interest and the ability of said reporter system to absorb or emit radiation is detectably altered in a concentration dependent manner when the analyte is bound to said reporter system.

2. The apparatus of claim 1 wherein said occlusive backing has sufficient drape characteristics to allow positioning of said apparatus over a skin or mucosal surface.

3. The apparatus of claim 1 wherein the reporter system comprises a specific binding pair having a first component that is an analyte-specific binding ligand comprising a first light-absorbing material, and a second component that binds to the binding ligand of said first component and comprises a second light-absorbing material, wherein:

(a) binding of said second component to the first component is reversible;

(b) the analyte binds to the first component in a competitive manner, thereby displacing said second component; and

(c) displacement of the second component produces a detectable alteration in the energy transfer between the first component and the second component, wherein said alteration is proportional to the concentration or amount of said analyte that binds to the first component.

4. The apparatus of claim 3 wherein the binding ligand is a glucose binding ligand and the analyte of interest is glucose.

5. The apparatus of claim 4 wherein said ligand is concanavalin-A.

6. The apparatus of claim 4 wherein the second component comprises a dextran glycoconjugate.

7. The apparatus of claim 3 wherein the first and second light-absorbing materials are fluorophores.

8. The apparatus of claim 3 wherein the detectable alteration in the energy transfer between the first component and the second component comprises a non-radiative fluorescence resonance energy transfer between said first and second light-absorbing materials.

9. The apparatus of claim 3 wherein the first component of the specific binding pair is tetramethylrhodamine isothiocyanate-concanavalin A ("TRITC-ConA") and the second component of the specific binding pair is fluorescein isothiocyanate-dextran ("FITC-dextran").

10. The apparatus of claim 1 wherein the reporter system is disposed within a polymer matrix having a pore size that allows for ingress and egress of a fluid containing or suspected of containing said analyte of interest.

11. The apparatus of claim 10 wherein said polymer matrix is in particulate form.

12. The apparatus of claim 11 wherein the polymer matrix is in the form of porous particles having a size predominantly in the range of 0.1 to 250 μm.

13. A method for detecting the presence or amount of an analyte present beneath a target skin or mucosal surface of an individual, said method comprising:

(a) disrupting the target surface to create one or more passages in that surface sufficient to allow said analyte to flow, exude, diffuse or otherwise pass from beneath the target surface to the target surface;

(b) placing the sensing apparatus of claim 1 in contact with the target surface and allowing the reporter system to contact analyte that has passed to the target surface; and

(c) detecting an alteration in the ability of the reporter system to absorb or emit radiation, thereby obtaining a signal indicative of the presence and/or amount of analyte present beneath the target surface.

14. The method of claim 13 wherein the target surface is disrupted by accelerating particles into said target surface.

15. The method of claim 14 wherein the particles have a size ranging from 0.1-250 μm.

16. The method of claim 15 wherein the particles have a size ranging from 10-70 μm.

17. The method of claim 13 wherein the analyte is glucose.

18. A method for quantifying glucose present in a body fluid beneath a target surface, said method comprising:

(a) accelerating particles into the target surface, wherein acceleration of said particles into the target surface is effective to allow passage of glucose from beneath the target surface to the target surface;

(b) contacting the glucose present at the target surface with a specific binding pair comprising a first component which is a glucose binding ligand containing a first light-absorbing material, and a second component which is a glycoconjugate containing a second light-absorbing material, the excited state energy level of the first light-absorbing material overlapping with the excited state energy level of the second light-absorbing material, said ligand and said glycoconjugate being chosen such that they reversibly bind to each other thereby allowing glucose present at the target surface to displace said glycoconjugate and competitively bind to said ligand;

(c) determining the extent to which non-radiative fluorescence resonance energy transfer occurs between the first light-absorbing and the second light-absorbing material in the presence of the glycoconjugate displaced by glucose and the ligand reversibly bound to glucose; and

(d) comparing the result of step (c) with the relationship between the extent of non-radiative energy transfer between the first light-absorbing material and the second light-absorbing material and glucose concentration in the body fluid determined in a calibration step.

19. The method of claim 18, wherein acceleration of said particles into the target surface serves to increase the permeability of the target surface.

20. The method of claim 18, wherein the particles are accelerated toward the target surface using a needleless syringe device.

21. The method of claim 18, wherein the particles are accelerated toward the target surface at a velocity of about 100 to 2,500 m/sec.

22. The method of claim 18, wherein the particles have a size predominantly in the range of 0.1 to 250 μm.

23. The method of claim 18, wherein the particles penetrate the skin to a depth in the range of 1 to 50 μm.

24. A method for detecting the presence or amount of an analyte present beneath a target skin surface of an individual, said method comprising:

(a) providing a particulate reporter system, wherein said reporter system binds the analyte of interest and the ability of said reporter system to absorb or emit radiation is altered in a concentration-dependent manner when said analyte is bound to said reporter system, and said particulate reporter system is comprised of particles having a size ranging from 0.1-250 μm;

(b) administering said reporter system into the target skin surface such that said particulate reporter system is delivered to a substantially uniform and homogenous depth within said skin;

(c) allowing the reporter system to contact the analyte; and

(d) detecting an alteration in the ability of said reporter system to absorb or emit radiation thereby obtaining a signal indicative of the presence or amount of analyte present beneath said target skin surface.

25. The method of claim 24 wherein said particulate reporter system is delivered using a needleless syringe.

26. The method of claim 25 wherein said particulate reporter system is accelerated toward the target skin surface at a velocity of about 100 to 2,500 m/s.

27. The method of claim 25 wherein said particulate reporter system is delivered at a depth of about 1-50 μm beneath said target skin surface.

28. The method of claim 24 wherein the particles have a size ranging from 10-70 μm.

29. The method of claim 24 wherein said reporter system comprises a specific binding pair having a first component that is an analyte-specific binding ligand comprising a first light-absorbing material, and a second component that binds to the binding ligand of said first component and comprises a second light-absorbing material, wherein:

(a) binding of said second component to the first component is reversible;

(b) the analyte binds to the first component in a competitive manner, thereby displacing said second component; and

(c) displacement of the second component produces a detectable alteration in the displacement of the second component and produces a detectable alteration in the energy transfer between the first component and the second component, wherein said alteration is proportional to the concentration or amount of said analyte that binds to the first component.

30. The method of claim 29 wherein the binding ligand is a glucose binding ligand and the analyte of interest is glucose.

31. The method of claim 29 wherein said ligand is concanavalin-A.

32. The method of claim 29 wherein the second component comprises a dextran glycoconjugate.

33. The method of claim 29 wherein the first and second light-absorbing materials are fluorophores.

34. The method of claim 29 wherein the detectable alteration in the displacement of the second component produces a detectable alteration in the energy transfer between the first component and the second component comprising a

non-radiative fluorescence resonance energy transfer between said first and second light-absorbing materials.